

# User Guide – HT500 Series v05/11

Professional submersible handheld transceivers

Intrinsically Safe



Ex ib IIA T4

Common Information  
(all models)



HT502/512/522/582(U)  
**Entry**



HT502S/512S/522S/582S(U)  
**Entry Selcall**



HT503/513/523/583(U)  
**Entry LCD**



HT505/515/525/585(U)  
**Advanced Selcall, 8-key**



HT506/516/526/586(U)  
**Advanced Selcall, Full Keypad**

# Introduction

This guide covers the 'basics' of your radio's operation. To meet your exact requirements the radio may have been customised by your Entel authorised dealer. These features will be explained in a separate guide issued by the dealer.

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# Certification

## Declaration of Conformity

Common

We Entel UK Limited of:

Entel UK Limited  
320 Centennial Avenue  
Centennial Park  
Elstree  
Borehamwood  
Hertfordshire  
WD6 3TJ  
United Kingdom

Declares under our sole responsibility that the product range:

### HT500 Series Handheld Radio Transceiver

Conforms to the following standards or other nominative documents:

- EN 300 086-2 V1.2.1: 2010-06, EN 301 489-1 V1.8.1:2008-04, EN 301 489-5 V1.3.1:2002-08, EN 60950-1:2006, in accordance with Directive 99/5/EC.
- EN 60079-0:2006, EN 60079-0:2009, EN 60079-11:2007 in accordance with Directive 94/9/EC

### Related Certificate:

94/9/EC: IECEx SIR 10.0097X

Notified Body No. 0518

Sira Certification, Rake Lane, Chester CH4 9JN, UK

### Quality Assurance Notification:

94/9/EC

Intertek

Notified Body 0359

Intertek House, Leatherhead KT22 7SB, UK

CE

M Austin



Quality Manager

Date: 10 May 2011



# Radio care

## Warranty

The HT5XX comes with a 24 month warranty, for details see our full terms & conditions.

## Advice

- Do not use options or accessories not specified by Entel
- Ensure that the radio is used within the parameters for which it was designed
- Please switch the transceiver off before connecting optional accessories

## Warning

Turn the transceiver off in the following locations outside of the radio's intrinsically safe approval rating:

- In explosive atmospheres (flammable gas, dust including metallic & grain powders etc)
- Whilst taking on fuel or while parked near fuel station
- Near explosives or blasting sites
- In aircraft, medical institutions or near persons known to be wearing a pacemaker

## Caution

- Do not disassemble or modify the transceiver for any reason
- Do not transmit while touching the antenna terminal or any exposed metallic parts of the aerial as this may result in a burn

- Please check and observe regulations in your country with regards to use whilst driving

## End of Life Disposal

- When your Entel transceiver reaches the end of its useful life, please ensure that the unit is disposed of in an environmentally friendly way. For country specific information please see: [www.entel.co.uk/recycling](http://www.entel.co.uk/recycling)

## Cleaning your Radio

After exposure to any potentially corrosive substance including salt water it is recommended to thoroughly wash the transceiver in fresh water. If washing with the battery removed from the radio, ensure that the battery is not immersed in water & clean only with a damp cloth.

**Note:** Do not wash the transceiver if you suspect the waterproofing seal may be damaged. Please return to your supplier for inspection / repair.



# Battery care

## Introduction

Your Entel radio is supplied with a high performance Lithium Ion (Li-Ion) battery. These batteries:

- Extend talk time
- Reduce the battery's size and weight
- Do not suffer from 'memory effect' that reduces the life of Ni-Cad and NiMH batteries
- Have a low toxicity, therefore reducing the impact on the environment

## Battery Pack Precautions

- Switch the transceiver OFF before charging
- Charge the battery pack before use

- Do not recharge the battery pack if it is already fully charged. This could lead to a premature battery replacement warning message (See Battery Communications on page 4)
- Charge the battery in accordance with the instructions enclosed with your charger
- Do not charge the transceiver and/or battery pack if they are wet

The battery pack includes potentially hazardous components. Please:

- Do not disassemble or reconstruct battery
- Do not short-circuit the battery
- Do not incinerate or apply heat to the battery

# Battery care / information

- Do not immerse the battery unless attached securely to the radio in water or get it wet by other means
- Do not charge the battery near fires or under direct sunlight
- Use only the specified charger and observe charging requirements
- Do not pierce the battery with any object or strike it with an instrument
- Do not use the battery pack if it is damaged in any way
- Do not reverse-charge or reverse-connect the battery
- Do not touch a ruptured or leaking battery

## If liquids from the battery get into your eyes, immediately:

- Wash your eyes out with fresh water avoiding rubbing them.
- Seek medical treatment.

## Battery Pack

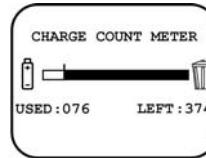
- If a battery is not to be used for an extended period of time (e.g. several months) remove the battery pack from the equipment and store in a cool and dry location (around 0°C) part charged.  
Do not fully discharge the battery before storage.
- Each charge cycle reduces the battery's life. Minimise the number of times you charge your battery especially in hotter environments which further shortens a battery's life.

The battery pack has an over-current protection circuit fitted. When charging a completely discharged battery i.e. first charge, ensure the battery is removed from the radio and then re-attached (if fitted to radio when charging). This will reset the protection circuitry and ensure normal operation. This process will need to be repeated if the battery is allowed to completely discharge in the future. In normal use this is unlikely.

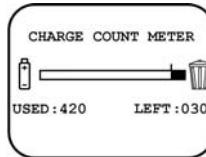
## Battery Communications

Each battery used with your radio has a microprocessor fitted, which logs the number of times your battery has been charged.

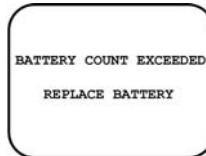
On a radio with an LCD display, the number of times the battery has been charged, together with the remaining charge cycles available, will be shown during switch on (if not de-activated by your dealer).



The warranty on all batteries is 12 months or 450 charge cycles, whichever is the sooner. After 420 cycles, at switch on the radio will emit a series of short tones, and on LCD models a waste bin icon will flash to alert you to the need to buy a new battery.



After 450 cycles, at switch on the radio will emit a series of long beeps, and on LCD models the message will change to BATTERY COUNT EXCEEDED REPLACE BATTERY. The radio will continue to operate but its operational time may be reduced, eventually failing all together.



Note: only genuine Entel batteries should be used. Only genuine batteries offer the battery charge count feature informing you when the battery is reaching the end of its useful life. Non intrinsically safe batteries will not work on intrinsically safe radios ensuring customer safety. Customer satisfaction is assured as you can not be supplied with sub standard, potentially dangerous battery packs from 3rd party manufacturers, ensuring it delivers the expected capacity and endurance. On HT series batteries a breathable membrane is used. This is clearly marked on the battery label. Piercing the membrane will allow water ingress to the battery and will invalidate the warranty.

# Packing List

- HT5XX Radio
- CNB550E Rechargeable 1800mAh Li-Ion battery
- CBH750 Spring loaded belt clip
- CATXX Antenna
- User guide CD
- CSAHT Intelligent rapid charger (only supplied with HT5X2, HT5X2S and HT5X3 models)

## Optional Accessories

### Battery & Charger Options

CNB550E	Spare intrinsically safe approved 1800mAh Lithium-Ion battery pack with rear clip
CSAHT	1-way intelligent rapid charger, 100-240v
CSBHT	6-way intelligent, rapid charger, 100-240v
CCAHT-230	1-way trickle charger with 230V mains adapter
CCAHT-110	1-way trickle charger with 110V mains adapter
CCAHT-12	1-way trickle charger with cigar lighter lead, 12V DC operation

### Carry Options

CLC952	Heavy duty black leather case with strap & belt loop
CLC953	Heavy duty black leather case with strap & belt loop
CLC956	Heavy duty black leather case with strap & belt loop
CBH750	Spare spring loaded belt clip

### Audio Accessory Options

CMP500	Heavy duty submersible speaker microphone
EHP9	D-shaped earpiece (plugs into CMP500 above)
EA12/950	D-shaped earpiece with in-line PTT/microphone & VOX*
EA15/950	Earpiece microphone with transparent acoustic tube & VOX*
EA19/950	D-shaped earpiece with boom microphone and in-line PTT & VOX*
EHP950	D-Shaped earpiece (connects directly to radio)
EPT40/950	Bone conductive earpiece microphone with PTT and VOX*
CHP950HS	Single earpiece heavy duty ear defender headset with boom mic for hard hat & VOX*

Note: The use of non Entel approved accessories will invalidate your intrinsically safe approval. Refer to certificate Sira 10 for permitted accessories.

# Optional Accessories cont...

CHP950HD	Double earpiece defender headset with boom mic and in line PTT for hard hat & VOX*
CHP950D	Double earpiece headband defender headset with boom mic and in line PTT & VOX*
CHP950BT	Bluetooth double earpiece headband defender headset with boom mic and ear cup PTT

\*VOX = Voice Operated Transmit (hands free operation)

Bluetooth option board in radio is required to use Bluetooth audio accessories.

Common

## Antenna Options

CXW640	Antenna adapter for external aerial	CAT10S-78	78MHz compressed antenna
CAT20	Helical antenna VHF	CAT10S-85	85MHz compressed antenna
CAT80	Whip antenna UHF	CAT10S	66-88MHz uncut compressed antenna
CAT20S	Stubby antenna VHF	CAT700-40	30-50MHz antenna
CAT80S	Stubby antenna UHF		

For complete up to date list of optional accessories visit [www.entel.co.uk](http://www.entel.co.uk)

# Preparing Your Radio For Use

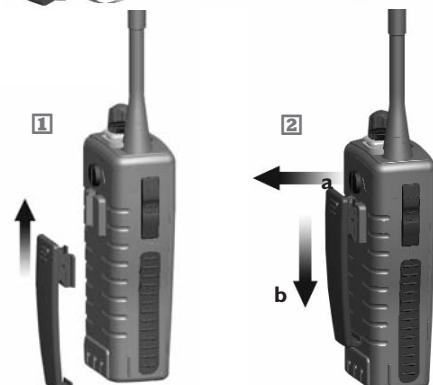
## Attaching / Removing the Battery Pack

- 1 To attach, locate the pegs on the bottom of the battery and place into the slots on the radio. Then press the top of the battery against the radio. Secure battery by tightening the screw clockwise by hand. (Do not over tighten)
- 2 To remove, unscrew the locking screw anticlockwise and pull the battery away from the top of the radio.



## Attaching / Removing the Belt Clip

- 1 To attach, press the clip into the slot on the back of the battery and slide up until you hear a "click".
- 2 To remove, pull the tab (a) towards the belt clip. Then slide the belt clip downwards (b).



# Preparing Your Radio For Use

## Attaching / Removing the Aerial

- 1 To attach, carefully align the aerial with the socket. Screw in the aerial clockwise (taking care not to cross the thread) until it is seated firmly against the top of the radio.
- 2 To remove, unscrew the aerial anti-clockwise.



## Attaching / Removing Audio Accessories

- 1 To attach, remove the accessory cover by unscrewing the locking screw anti-clockwise (leave cover attached or store in a safe place). Attach accessory plug by locating over the socket. Carefully tighten the locking screw clockwise until finger tight (do not tighten with a screwdriver etc).
- 2 To remove, unscrew the locking screw by hand in an anti-clockwise direction (carefully use a coin or screwdriver if too tight). Ensure you re-fit the accessory cover so as to protect the socket.



## Charging Your Radio

Several charger options are available. Please refer to your charger user guide.

## Turning your radio on

Turn your radio on by pressing the on / off button on the front of the radio. The radio will beep and the LED will illuminate constant yellow for approximately 4 seconds, followed by a second “warble” (if not disabled by the Dealer when programmed).

# HT502/512/522/582(U)

## Standard Features:

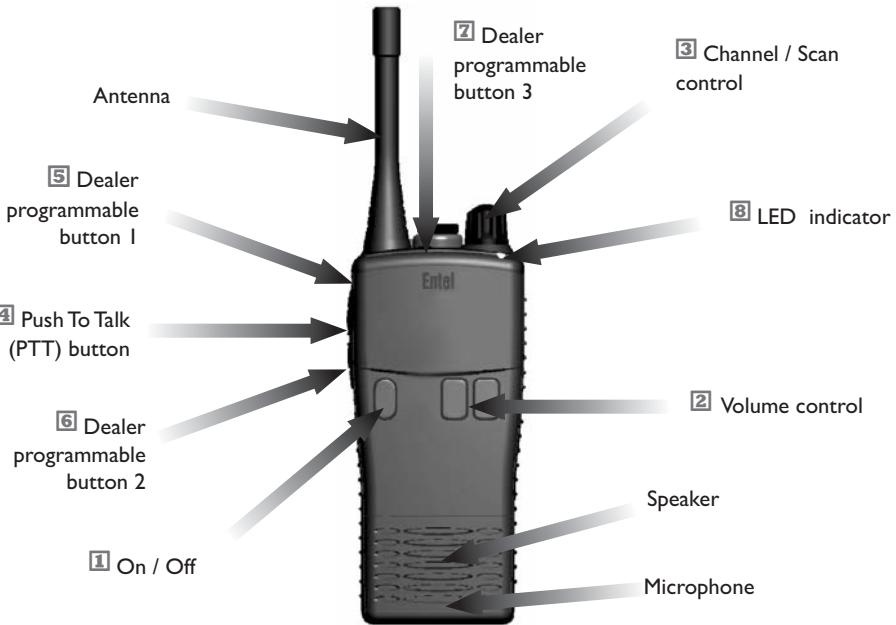
- 16 programmable channels
- CTCSS & DCS (analogue & digital squelch) with squelch tail elimination (removes the 'shh' noise)
- Exceptionally loud and clear audio
- Robust design, exceeds MIL-STD-810C/D/E/F
- Environmentally protected to IP68 i.e. submersible to 5 metres for up to 60 minutes
- 1800mAH Lithium-Ion battery for superior operational time
- Full band switching allows access to all channels in each band
- Battery charge count
- Radio cloning mode
- Low battery alert indicates when the battery needs recharging

### Dealer programmable features:

- VOX for hands free operation
- High/Low transmit power
- Normal & priority scan (programmable per channel position)
- Panic (personal attack) button causes high pitch, high volume, siren tone to be emitted from the radio's speaker
- Key lock button
- Prefixed minimum volume level and fixed bleep level
- Channel monitor (CTCSS/DCS Defeat)
- Talkaround (allows communication away from a base station)
- Transmit time out-timer (ensures channels are not blocked)
- Voice scrambler with 1 code per channel (option)
- Automatic power save to further increase operational time
- User adjustable squelch level



# Controls & Indicators



- 1** On / Off button. Press to turn radio on, press and hold to turn off.
- 2** Press up / down buttons to increase / reduce volume.
- 3** Channel / Scan control. Rotate to select the desired channel or scan setting.
- 4** Push To Talk (PTT) button. Press to speak and release to listen.
- 5** Dealer programmable button 1 (ask your dealer for more information).
- 6** Dealer programmable button 2 (ask your dealer for more information).
- 7** Dealer programmable button 3 (ask your dealer for more information).
- 8** LED indicator:

• RED steady	= Transmitting
• RED flashing slowly	= Battery needs re-charging
• GREEN steady	= Receiving
• YELLOW steady	= Non valid signal detected
• YELLOW flashing rapidly	= Scanning

# HT502S/512S/522S/582S(U)

All the features of the HT502/512/522/582 (see page 8) plus the following features:

## Standard Features:

- Entry level selective calling
- Voice scrambler with 4 code per channel included as standard

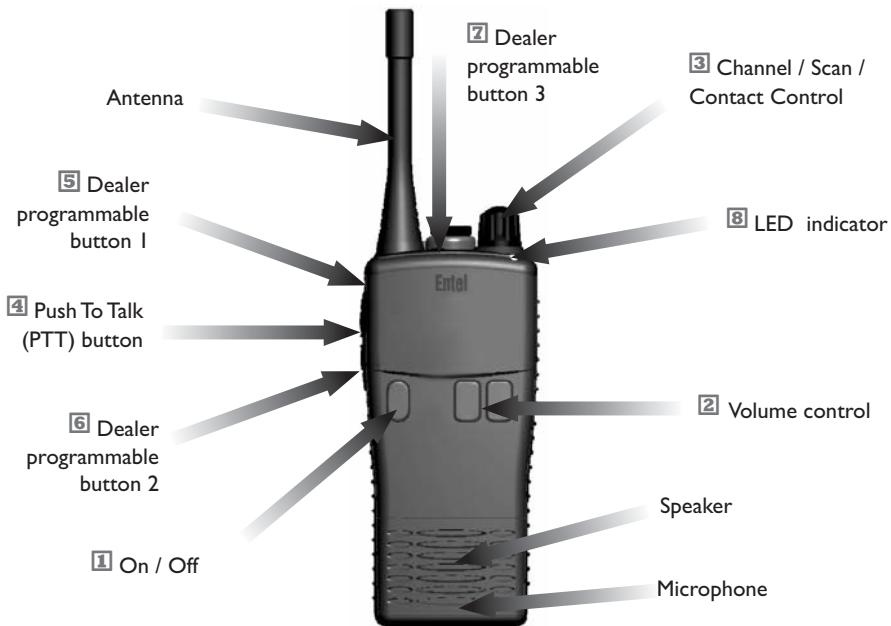
## Dealer programmable features:

- Open or closed channel modes (allows private conversations)
- Call a group, individual or all radios at once
- Up to 16 pre-programmed contacts
- Multiple ringtones
- Stun (disable) a lost or stolen radio
- Revive (enable) a recovered radio
- Panic button with remote alert
- Emergency microphone live
- Automatic Lone-Worker alarm mode
- Automatic Man-Down alarm mode (optional)
- Silent alarm call mode
- Continue emergency alarm even if radio switched off



HT5X2S

# Controls & Indicators



- ① On / Off button. Press to turn radio on, press and hold to turn off.
- ② Press up / down buttons to increase / reduce volume.
- ③ Channel / Scan / Contact control. Rotate to select the desired channel or scan setting.
- ④ Push To Talk (PTT) button. Press to speak and release to listen.
- ⑤ Dealer programmable button 1 (ask your dealer for more information).
- ⑥ Dealer programmable button 2 (ask your dealer for more information).
- ⑦ Dealer programmable button 3 (ask your dealer for more information).
- ⑧ LED indicator.
  - RED steady = Transmitting
  - RED flashing slowly = Battery needs re-charging
  - GREEN steady = Receiving
  - GREEN flashing slowly = Selcall received
  - YELLOW steady = Non valid signal detected
  - YELLOW flashing rapidly = Scanning

# HT503/513/523/583(U)

All the features of the HT502/512/522/582 (see page 8) plus the following additional features:

## Standard Features:

- LCD screen to display channel number / battery charge count
- 255 channel capacity



HT5X3

# Controls & Indicators



1 On / Off button. Press to turn radio on, press and hold to turn off.

2 Channel / Scan control or volume control (dealer definable).

3 Channel / Scan control or volume control (dealer definable).

4 Push To Talk (PTT) button. Press to speak and release to listen.

5 Dealer programmable button 1 (ask your dealer for more information).

6 Dealer programmable button 2 (ask your dealer for more information).

7 Dealer programmable button 3 (ask your dealer for more information) and LED indicator.

8 LED indicator.

- RED steady = Transmitting
- RED flashing slowly = Battery needs re-charging
- GREEN steady = Receiving
- GREEN flashing slowly = Selcall / message received
- YELLOW steady = Non valid signal detected
- YELLOW flashing rapidly = Scanning

# HT505/515/525/585(U)

All the features of the HT503/513/523/583 (see page 12) plus the following features:

## Standard Features:

- Advanced selective calling
- Voice scrambler with up to 4 codes per channel
- Intuitive menus (like a mobile phone)
- Info button (user guide built-in to radio)

## Dealer programmable features:

- Speed dial
- Who's calling (caller ID)
- 255 user contact list (just like a mobile phone)
- Missed, received & dialled numbers lists
- Multiple ring / alert tones
- Power on password option
- Manual location information sent with emergency call
- Fully automatic indoor location (option)
- Send / Receive status messages



HT5X5

# Controls & Indicators

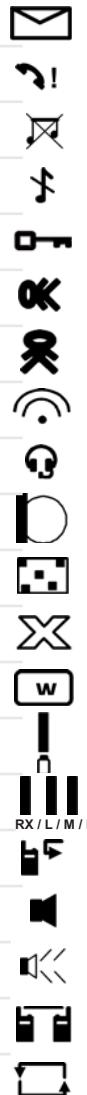


- 1 On / Off button. Press to turn radio on, press and hold to turn off.
- 2 Multi-function dealer programmable control (ask your dealer for more information).
- 3 Dealer programmable multi function buttons.
- 4 Push To Talk button. Press to speak and release to listen.
- 5 Dealer programmable button 1 (ask your dealer for more information).
- 6 Dealer programmable button 2 (ask your dealer for more information).
- 7 Dealer programmable button 3 (ask your dealer for more information).
- 8 LED indicator.

- RED steady = Transmitting
- RED flashing slowly = Battery needs re-charging
- GREEN steady = Receiving
- GREEN flashing slowly = Selcall / message received
- YELLOW steady = Non valid signal detected
- YELLOW flashing rapidly = Scanning

# LCD Indicators

- Message Received
- Missed Call
- Key Bleeps Off
- Silent Profile
- Keypad Locked
- Man Down
- Lone Worker
- Bluetooth device connected
- Accessory Connected
- VOX Enabled
- Scramble Enabled
- Do Not Disturb
- Whisper Mode
- Battery State
- Receive strength / TX Output Low / Mid / High
- Call Diverted
- Speaker muted
- Speaker unmuted
- Talkaround enabled
- Channel scanning



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# HT506/516/526/586(U)

All the features of the HT505/585/525/585 (see page 14) plus the following features:

## Standard Features:

- Keypad

## Dealer programmable features:

- Edit contact list
- Free dial radio contacts
- Free dial telephone numbers
- Free dial DTMF numbers



# Controls & Indicators



- 1 On / Off button. Press to turn radio on, press and hold to turn off.
- 2 Multi-function dealer programmable control (ask your dealer for more information).
- 3 Dealer programmable / function buttons.
- 4 Push To Talk (PTT) button. Press to speak and release to listen.
- 5 Dealer programmable button 1 (ask your dealer for more information).
- 6 Dealer programmable button 2 (ask your dealer for more information).
- 7 Dealer programmable button 3 (ask your dealer for more information).
- 8 LED indicator
  - RED steady = Transmitting
  - RED flashing slowly = Battery needs re-charging
  - GREEN steady = Receiving
  - GREEN flashing slowly = Selcall received
  - YELLOW steady = Non valid signal detected
  - YELLOW flashing rapidly = Scanning

# LCD Indicators

- Message Received 
- Missed Call 
- Key Bleeps Off 
- Silent Profile 
- Keypad Locked 
- Man Down 
- Lone Worker 
- Bluetooth device connected 
- Accessory Connected 
- VOX Enabled 
- Scramble Enabled 
- Do Not Disturb 
- Whisper Mode 
- Battery State 
- Receive strength / TX Output Low / Mid / High 
- Call Diverted 
- Speaker muted 
- Speaker unmuted 
- Talkaround enabled 
- Channel scanning 

# Certification

## Certification

Intrinsically Safe



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### SAFETY NOTES

- HT Series V2 radios must always be used within the terms of their certification.
- Keep the radios away from aggressive substances. If used in a hostile environment, extra protection may be needed.
- To prevent ignition of hazardous atmospheres, batteries must only be charged in an area known to be non-hazardous.
- Use of battery chargers other than the Entel charger supplied will invalidate the explosion protection certification.
- No unauthorised repairs are permitted.
- Radios fitted with a CNB550E battery pack must not be used outside of the ambient temperature range indicated on the battery pack label.

# Notes

Use this page to record important information, such as the serial number of your radio, and channel details.

Notes

# ‘the professional’s choice’

## <Intended Country Of Use>

<input type="checkbox"/> AT	<input type="checkbox"/> FR	<input type="checkbox"/> LT	<input type="checkbox"/> SK
<input type="checkbox"/> BE	<input type="checkbox"/> DE	<input type="checkbox"/> LU	<input type="checkbox"/> SI
<input type="checkbox"/> BG	<input type="checkbox"/> GR	<input type="checkbox"/> MT	<input type="checkbox"/> ES
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<input type="checkbox"/> FI	<input type="checkbox"/> LV	<input type="checkbox"/> RO	

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U.S. Design Patent Pending No. 23/182,829  
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